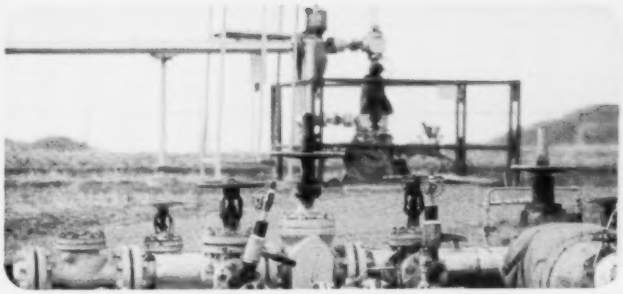


ALBERTA OIL & GAS INDUSTRY

QUARTERLY UPDATE

SPRING 2013

Reporting on the period: Feb. 1, 2013, to Mar. 28, 2013

Alberta Government

All about oil and gas*

Technology is setting the stage for another boom in Alberta's non-oil sands oil and natural gas industry. Until the last few years, the sun had slowly been setting on Alberta's conventional oil and natural gas industry. Oil production had declined from a peak of 1.43 million barrels a day in 1973 to a low of around 460,000 barrels per day in 2010.

But things are changing for the better, as increased implementation of long horizontal wells and multistage fracturing in tight oil plays across the province—not to mention new provincial royalty incentives to encourage drilling—has crude oil drilling activity and production on the upswing. Although natural gas activity has slowed due to weak prices, Alberta is poised to benefit once a price correction occurs.

In fact, the tight oil revolution that began in the United States and gradually moved north into Alberta marks the dawning of a new day for oil and natural gas exploration and production in the province.

In Alberta, the new technology is being used in an increasing number of oil plays. Among the most advanced plays are the Cardium in west-central Alberta, the Beaverhill Lake Carbonates near Swan Hills, the Viking in east-central Alberta and at Red Water north of Edmonton, in the Pemiscot at Princess in southern Alberta, and at Judy Creek in northwestern Alberta. Additionally, emerging plays include the Alberta Bakken in the southern reaches of the province, and in oil windows in the Duvernay and Montney shale.

High drilling activity in these areas will offset the steep decline in Alberta conventional production that would otherwise be expected.

In 2011, 3,170 successful oil wells were drilled, an increase of 37 per cent from 2010. The last time Alberta experienced this high level of oil drilling was in 2005. From this total, 1,818 new horizontal oil wells (including those using multistage fracturing technology) were brought on production in 2011, an increase of 78 per cent from 2010 levels of 1,023 horizontal wells. This raises the total number of horizontal wells to 6,643.

The number of new vertical oil wells placed on production is expected to decline to 1,040 wells in 2021. This well count is relatively low and reflects the view that many new wells will be horizontal wells using multistage fracturing technology.

The number of new horizontal oil wells forecast to be placed on production in 2012 and beyond is projected to increase from 1,818 in 2011 to 2,160 in 2012 and 2013, and to decline gradually to 1,560 in 2021.

Although low natural gas prices have reduced drilling activity in Alberta for that commodity the past few years, when prices rebound the province will be well positioned to capitalize.

Canada is the third-largest natural gas producer in the world, with about 80 per cent of the country's gas being produced in Alberta. According to provincial figures, at the end of 2010, remaining established reserves of conventional natural gas stood at 36.4 trillion cubic feet, while remaining established coalbed methane (CBM) gas reserves stood at 2.4 trillion cubic feet. Reserve additions as a result of new drilling replaced 46 per cent of 2010 gas production. The province estimates the remaining ultimate potential of marketable conventional natural gas at 74 trillion cubic feet.

Although conventional natural gas remains a very important part of Alberta's natural gas supply, horizontal drilling and multistage fracturing now allow for development of natural gas from a new source—unconventional natural gas resources. Aside from CBM, Alberta's unconventional natural gas resources include tight gas (natural gas trapped in low-permeability sedimentary rocks, such as sandstone or limestone) and shale gas (trapped in shale rock).

For conventional natural gas, in 2011, 2,310 new conventional gas connections were placed on production in the province, a decrease of 24 per cent from 2010. This was the fifth straight year of reductions in conventional gas connections. The number of horizontal gas wells drilled and connected in the province is increasing as a percentage of the total. In 2011, about 25 per cent of new gas connections were horizontal wells compared with 14 per cent in 2010. ■

TABLE OF CONTENTS

02	**All about oil and gas**
03	**Oil plays**
04	**Natural gas plays**
05–06	**Government update**
07–08	**What's new in the oil and gas industry**
09	**Technology update**
10	**Labour update**
11–13	**Oil and gas statistics**
14–15	**Promising tight oil plays**
16	**Contacts**

All photos © 2013, JuneWarren-Nickle's Energy Group

*This publication contains information about Alberta's oil and gas industry, excluding oil sands. For information on the oil sands please refer to the Alberta Oil Sands Industry Quarterly Update on this website.

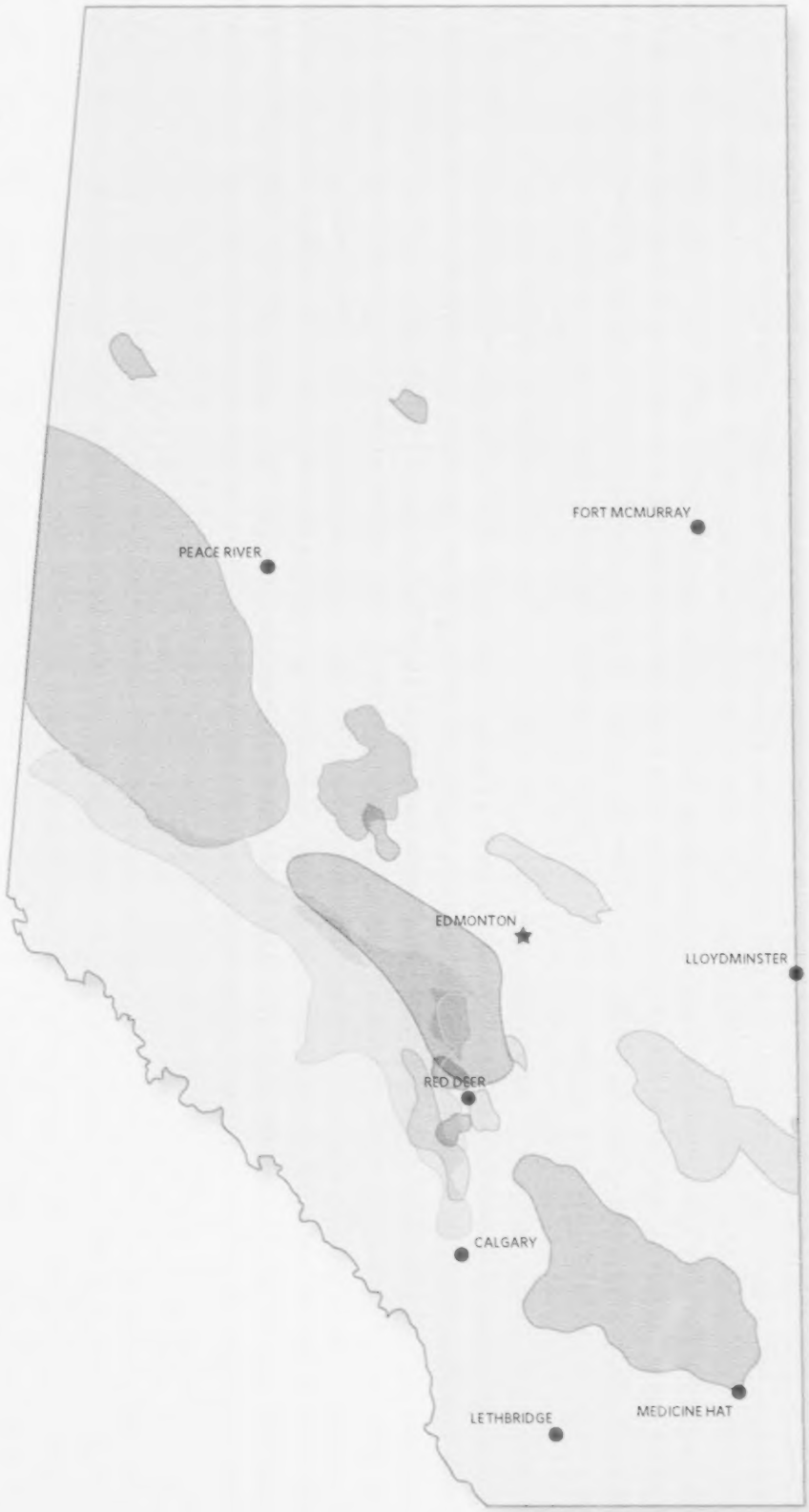
Oil plays

The Alberta Energy Resources Conservation Board (ERCB) estimates the remaining established reserves of conventional crude oil in Alberta to be 1.5 billion barrels, representing about one-third of Canada's remaining conventional reserves.

This is a year-over-year increase of 3.8 per cent, resulting from production, reserves adjustments and additions from drilling that occurred during 2011.

In 1994, based on the geological prospects at that time, the ERCB estimated the ultimate potential of conventional crude oil to be 19.7 billion barrels. Given recent reserve growth in low permeability, or tight oil plays, the ERCB believes that this estimate may be low.

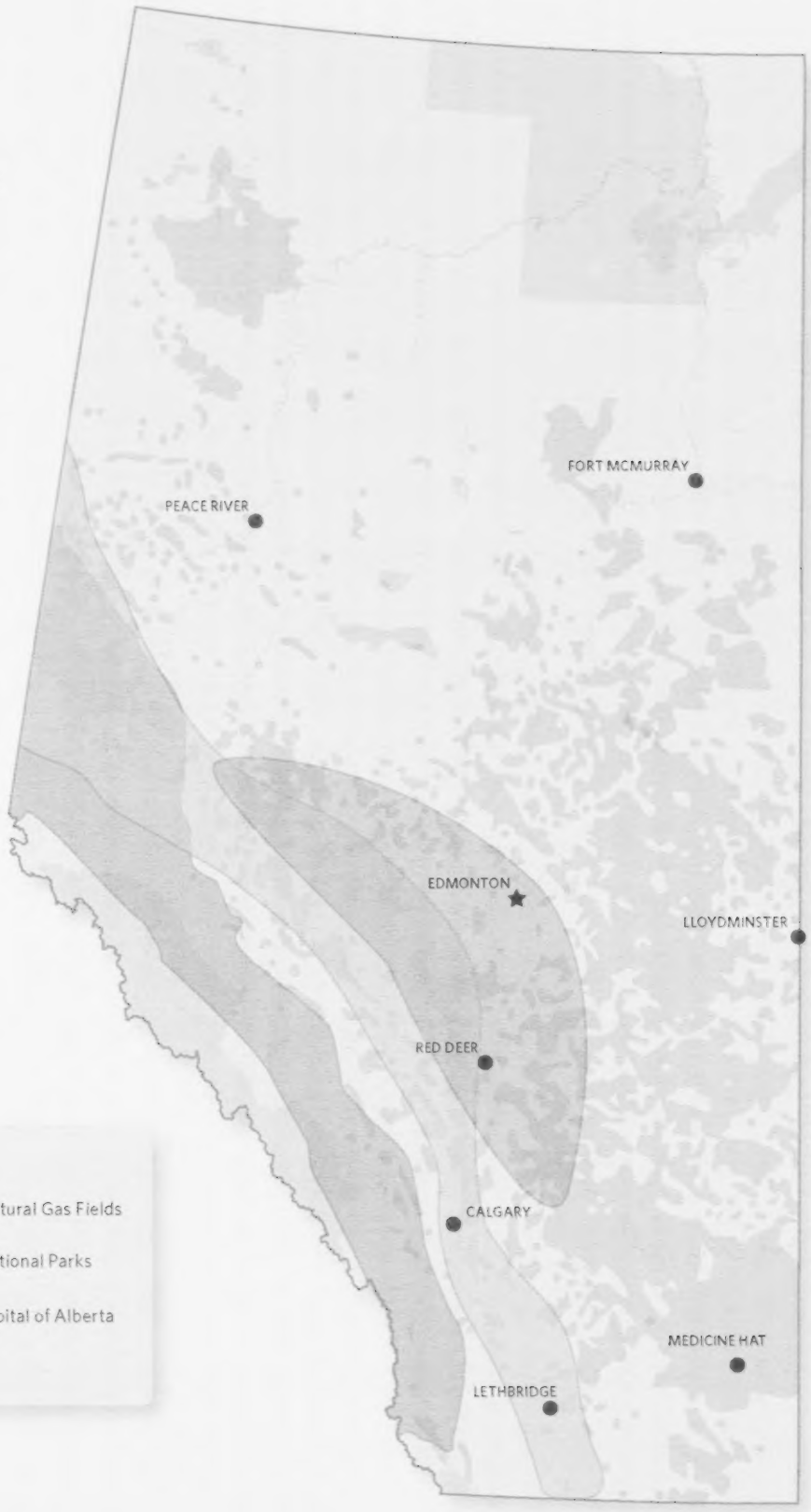
Starting in 2010, total crude oil production in Alberta reversed the downward trend that was the norm since the early 1970s. In 2010 and 2011, light-medium crude oil production began to increase as a result of increased, mainly horizontal, drilling activity with the introduction of multistage hydraulic fracturing technology. The successful application of this technology and increased drilling resulted in total crude oil production increasing by seven per cent in 2011. Alberta's production of conventional crude oil totalled 179 million barrels in 2011.



Natural gas plays

Alberta's natural gas bounty is plentiful and is produced from both conventional and unconventional reserves. While the vast majority of the province's natural gas is still produced from conventional sources, growing natural gas volumes from coal, shale and tight formations will also be strong contributors going forward.

Alberta has a large natural gas resource base, with remaining established reserves of about 39 trillion cubic feet and estimated potential of up to 500 trillion cubic feet of natural gas from the coalbed methane resource. In addition, a large-scale resource assessment of shale gas potential in Alberta is underway and could significantly add to the natural gas prospects for the province.



GOVERNMENT UPDATE

NEW ONLINE SUPPORT FOR ALBERTA BUSINESSES

The Alberta government is making it easier for businesses to find information about services and regulations that affect them.

"We heard quite clearly from the Red Tape [Reduction] Task Force that more needs to be done to support small-business growth in Alberta," said Thomas Lukaszuk, deputy premier and minister of enterprise and advanced education.

"Business owners have said that easy access to timely, relevant information is important for their success. Consolidating all of this information online will help support new and existing businesses to prosper and grow."

A new landing page, accessible with one click from the main government of Alberta web page, consolidates information on business services such as:

- The Business Link—offering free to low-cost business seminars for business start-ups, helping entrepreneurs grow their business;
- Productivity Alberta—offering tools and services to help companies become stronger by showing them how they can increase their productivity and profitability;
- Rural Alberta Business Centres—where advisors provide one-stop access to information services that support the development, growth and success of small businesses in rural communities;
- BizPaL—an online permit and licence service providing a complete list of permits and licences from all levels of government; and
- Alberta Innovates Connector—offering free, personalized services connecting innovators and entrepreneurs to resources, people and organizations.

The landing page also provides a link to a new web page listing all 1,100 government regulations. It also includes a new feedback function so that Albertans can comment on proposed regulations.

The improved access to business services and regulations reflects input that the Alberta government heard from business organizations and the recommendations of the Red Tape Reduction Task Force.

ALBERTA PUSHES FORWARD WITH ASIA MARKET ACCESS STRATEGY

The 12-member Asia Advisory Council met with industry representatives from sectors including energy, forestry, agriculture and education in Calgary January 29 to February 1 to discuss Alberta's Asia-specific initiatives.

Alberta Government

The council also met with the managing directors of Alberta's international offices in Asia to discuss the offices' current activities as part of its information-gathering process. The Asia Advisory Council wrapped up three days of meetings with a discussion with Alberta Premier Alison Redford.

The council's efforts complement work led by Premier Redford to bolster new market access, trade and investment with key markets around the world. Accessing new markets remains Alberta's most critical economic priority.

Based on the feedback received, the council identified three priority outcomes:

- Enhance public awareness of the importance of expanding market access to Asia;
- Work with government and industry to set hard targets for trade and investment, work on strategies to create more opportunities for Alberta's small- and medium-sized enterprises doing business in Asia and for Alberta students to study abroad; and
- Help complement the government of Alberta's advocacy efforts to create new access to Asian markets.

More findings from the council meetings are available on their website at http://www.international.alberta.ca/aac.cfm.

PROVINCE SEEKS INPUT ON NEW ENERGY REGULATOR

Albertans will have a hand in building the regulations that will guide the work of the new Alberta Energy Regulator.

The regulator, which begins operations in June, marks a new phase of energy regulation for the province. Through the Responsible Energy Development Act, the province is protecting and improving participation rights for landowners, while ensuring industry has an effective and efficient regulatory process.

Public consultation sessions took place in 18 communities across the province (from February 20 to March 13).

Albertans who were unable to take part in the three-hour facilitated sessions can provide their ideas online until May 1. The survey and other information can be found at http://www.energy.alberta.ca/Initiatives/RegulatoryEnhancement.asp. ➤

Government update *continued*

CARBON CAPTURE FUNDING AGREEMENT CANCELLED

The Alberta government and Swan Hills Synfuels have agreed to discontinue their $285-million carbon capture and storage (CCS) funding agreement.

Deferred project timelines move the carbon capture components beyond the scope of the government's funding requirements. To date, no money has been advanced by the province for the project.

In 2011, the province committed $285 million over 15 years for Swan Hills Synfuels to capture the CO_2 from the gasification of underground coal and sell it for use in enhanced oil recovery.

"Persistent low prices for Alberta's natural gas have driven this business decision," said Energy Minister Ken Hughes. "CCS remains a key part of Alberta's commitment to reducing greenhouse gas emissions and the responsible development of our energy resources."

Government is moving forward with two oil sands-related CCS projects, the Alberta Carbon Trunk Line and Shell Canada Limited's Quest CCS Project. Combined, they are expected to reduce greenhouse gas emissions by 2.76 million tonnes annually by 2016, the equivalent of taking 550,000 cars off the road.

"Alberta's unprecedented commitment of $1.3 billion for these projects speaks to how serious we are about climate change and reducing our impact," added Hughes. No decisions have been made with respect to reallocating the funding.

NEB ISSUES RECOMMENDATIONS REGARDING THE NORTHWEST MAINLINE KOMIE NORTH EXTENSION PROJECT

The National Energy Board (NEB) recommended partial approval to the Governor in Council for the Northwest Mainline Komie North Extension project submitted by NOVA Gas Transmission Ltd., or NGTL.

In its application, NGTL proposed to build a $333.2-million project consisting of two separate pipeline segments. The NEB recommended approval for the Chinchaga section of the project, which is a 33-kilometre pipeline loop running between the Chinchaga meter station and the Meikle River compressor station located about 76 kilometres northwest of Manning, Alta.

> "Persistent low prices for Alberta's natural gas have driven this business decision. CCS remains a key part of Alberta's commitment to reducing greenhouse gas emissions and the responsible development of our energy resources."
>
> — *Ken Hughes, minister of energy*

The NEB did not recommend approval for the Komie North section. This section of the project is an extension to the Horn River Mainline and includes approximately 97 kilometres of pipe, which is proposed to be located 110 kilometres north of Fort Nelson, B.C.

NEB APPROVES 25-YEAR EXPORT LICENCE TO LNG CANADA DEVELOPMENT INC.

The NEB has approved an application by LNG Canada Development Inc. (LNG Canada) for a licence to export liquefied natural gas (LNG) from a proposed terminal near Kitimat, B.C.

The export licence will authorize LNG Canada to export 670 million tonnes of LNG (approximately equivalent to 32.95 trillion cubic feet of natural gas) over a 25-year period. The maximum annual quantity allowed for export will be 24 million tonnes of LNG (approximately equivalent to 1.18 trillion cubic feet of natural gas). The daily equivalent of these exports is 3.23 billion cubic feet per day.

In approving the application, the NEB satisfied itself that the quantity of gas to be exported does not exceed the surplus remaining after due allowance has been made for the reasonably foreseeable requirements for use in Canada, having regard to the trends in the discovery of gas in Canada. ■

What's new in the oil and gas industry

MONTNEY PLAY DRIVES LAND SALES RESULTS

The Alberta government collected $58.89 million in bonus-bid revenue at the March 6 land sale, with interest in the Montney play likely driving most of the high-priced parcels.

Industry purchased the rights to 144,942 hectares at an average of $406.29 per hectare. After four sales so far in 2013, the government has attracted $194.1 million in bonus bids on 601,210 hectares at an average of $322.85 per hectare. To the same point last year, the province had collected $261.02 million for 561,947 hectares at an average of $464.49.

"[It] looks to me like the Montney play is still driving the high prices," said Brad Hayes, president of Petrel Robertson Consulting Ltd. "There are a lot of areas where companies are discovering that it will yield liquids or liquids-rich gas—some in deeper Deep Basin areas and others within or flanking long-established pools further north on the Peace River Arch."

Highlights of the sale included the land sale bonus high bid of $9.02 million successfully submitted by Windfall Resources Ltd., which produced an average price of $7,049.73 per hectare. The 1,280-hectare licence is for petroleum and natural gas below the base of the Doig formation. Windfall also picked up an adjacent 1,088-hectare parcel for $6.63 million.

Hayes noted that rights were posted below the base of the Doig in an area where there has been a lot of Montney activity historically.

"These parcels are focused on the Montney, and obviously companies feel that recent drilling has de-risked the play in this area, so high land prices can be supported," he said.

He noted that a parcel in the same area, but posting only shallower rights, above the Montney, went for less than 10 per cent of the per-hectare price of the above parcels.

ALBERTA'S FISCAL REGIME BENEFITS DUVERNAY ACTIVITY

The emerging liquids-rich Duvernay shale play in west-central Alberta is ideally situated when it comes to development, an unconventional resources conference heard recently.

"If we could pick up the Duvernay and move that reservoir to wherever we wanted to in North America, my thinking is we would put it exactly where it is," Brendan McCracken, Duvernay team lead for Encana Corporation, told the Hart Energy-CSUR 2013 DUG Canada conference in Calgary.

In his presentation, he outlined four cornerstones of the play: the Alberta government's fiscal and royalty incentives, a surface environment suited to a resource play hub, access to infrastructure and the service sector, and structural demand for the pentanes plus it produces.

The province's deep gas holiday and the shale new well program are a "huge leg-up," according to McCracken. "On an after-tax after-royalty basis, the Duvernay actually winds up delivering superior returns to some of its sister peer plays in the United States," he said.

While plays such as the Eagle Ford in Texas deliver much better returns than the Duvernay on a cost basis before tax and royalties, "when you factor in those taxes and royalties, which is, after all, reality, the Duvernay delivers superior returns."

A second cornerstone is the surface environment that is suited to what Encana calls a resource play hub with the use of pad drilling and long-reach horizontal wells. "It's not so far west it's in the mountains but it's not so far east it's in populated areas," said McCracken. "It's kind of situated in this perfect little surface fairway where the environment is perfectly suited to having rigs and spreads sitting on pads for long periods of time."

As the massive liquids-rich play fairway is in an area that has been active for 60 years with conventional oil and natural gas plays, it also has access to a well-developed service sector and unutilized infrastructure capacity. Additionally, in Alberta the condensate is in high demand for use as a diluent for bitumen.

CARDIUM OUTPUT ON THE UPSWING

Oil production from horizontal wells in Alberta's Cardium formation has skyrocketed to about 80,000 barrels per day in only four years, reports Peters & Co. Limited.

Horizontal Cardium wells were producing less than 2,000 barrels of oil per day at the start of 2009, Peters said in a recent seven-page Cardium oil update. (It said the total estimated oil production from the Cardium formation is about 115,000 barrels per day.)

One of the largest oil reservoirs in western Canada, the Cardium formation has been drilled with vertical wells for decades, but was considered a mature play until ➤

the success of multi-frac horizontal wells sparked significant new investment. Thanks to the advances in drilling and completion technologies, the Cardium has become the equivalent of Alberta's Bakken—a tight oil play that has helped reverse a decades-long decline in the province's light oil production.

Nearly 2,000 wells have been drilled across the vast Cardium fairway spanning about 500 kilometres between Lochend in the south and Wapiti in the northwest, Peters said.

"Unconventional horizontal drilling in the Cardium ranks as one of the most targeted light oil plays in the [Western Canada Sedimentary Basin] with [about] 580 wells drilled and [about] 715 wells brought onstream in 2012," Peters reported.

The current Cardium total of nearly 2,000 horizontal wells is up from fewer than 70 horizontal wells on production at the start of 2009. Of the nearly horizontal Cardium wells drilled to date, about 1,700 are outside the main conventional conglomerate play in the Pembina field, Peters said.

New areas where horizontal Cardium wells are being drilled include Wapiti, Kakwa and Kaybob in the northwest, and Stolberg, Willesden Green, Ferrier and Harmattan East on the southern portion of the core Pembina fairway, the investment firm said.

BAYTEX FINDS USE FOR EXCESS NATURAL GAS

Calgary-based Baytex Energy Corp. has signed a 10-year agreement with Genalta Power Inc. whereby the majority of excess gas associated with its Peace River-area heavy oil production will be delivered to a power-generating facility being constructed by Genalta in the area.

Similar to Husky Energy Inc. and Shell Canada Limited, Baytex will construct a pipeline that will connect its existing integrated gas collection system in the Harmon Valley and West Harmon areas to the Genalta facility. The pipeline is expected to be completed in the first half of 2013.

"Baytex has been working to reduce emissions in the region, and this initiative is part of our ongoing commitment to conduct our operations in an environmentally responsible manner," said James Bowzer, Baytex's president and chief executive officer.

PSAC TO DEVELOP HYDRAULIC FRACTURING CODE OF CONDUCT

The Petroleum Services Association of Canada (PSAC) announced a new initiative February 20 that it hopes will help allay public concerns over hydraulic fracturing operations.

Led by nine PSAC member companies that perform hydraulic fracturing services, the program, called the Working Energy Commitment, outlines the current principles that oversee operations in western Canada and will eventually lead to the formation of a code of conduct for the use of that technology.

Mark Salkeld, president and chief executive officer of PSAC, said that given the growing amount of negative public sentiment toward hydraulic fracturing activities in western Canada and elsewhere, the "time is right" for his group to become more active in engaging the public.

And with PSAC member companies on the front line of providing hydraulic fracturing services—and with many companies and service sector employees living in communities most affected by oil and gas operations—Salkeld said the PSAC initiative has a lot to offer as the industry grapples with gaining the understanding and trust of stakeholders.

"We just felt that now was the time, because of all the [negative] talk about hydraulic fracturing, that the people who actually do the work start talking about it," he said, noting that educational and strategical initiatives by other groups such as the Canadian Association of Petroleum Producers and the Canadian Society of Unconventional Resources have led the charge to date.

"We're not the folks in downtown Calgary; we're the folks out in the communities. These companies have bases set up all over Alberta, British Columbia and Saskatchewan, and we employ locally. It's hitting close to home and our membership asked us to reach out and help promote what we do. We're good at what we do, we're proud of what we do, and it's time we started taking about it."

Salkeld said the most important outcome of the initiative will be the development of the code of conduct, which will be built through collaboration with on-the-ground stakeholders in communities where oil and gas development is active. Consultation will begin in April and will take place in various locations throughout Alberta, British Columbia and Saskatchewan. PSAC expects to release the code of conduct by the end of the year.

The nine companies that are leading the initiative are: Baker Hughes Canada, Calfrac Well Services Ltd., Canyon Technical Services Ltd., GasFrac Energy Services Inc., Halliburton, Iron Horse Energy Services, Sanjel Corporation, Schlumberger Canada Ltd. and Trican Well Service Ltd. ■

TECHNOLOGY UPDATE

TRICAN ADDS TO TECHNOLOGY ASSETS

Calgary-based Trican Well Service Ltd. has closed the acquisition of i-TEC Well Solutions, a privately owned company based in Norway that has developed a field-proven portfolio of completion systems and intervention tools.

Trican said that the technology will not only help its operations in Alberta, but it has taken a significant step into the global horizontal multistage completion market with the acquisition of i-TEC, a technology-focused developer of innovative next generation tools that has built its business by providing solution-based services.

The acquisition of i-TEC gives Trican a comprehensive portfolio of field proven advanced completion and intervention technologies that can be used in cemented as well as open-hole installations, it said.

i-TEC's patented i-FRAC valve system allows for valve clusters to be placed in prolific portions of the reservoir so that customers can optimize production regardless of whether the completion is cemented or open hole. The i-FRAC technology maximizes the number of fracture initiation sites with up to 400 valves in a single completion activated by only 20 balls.

Trican believes that this technology is game changing and should convert plug-and-perf users to sliding sleeves and allow its customers to perform more cemented sliding sleeve completions with confidence.

In addition to i-FRAC, Trican said the company has a number of patented intervention technologies that allow efficient servicing of horizontal multistage completions to ensure high production rates long after the initial completion.

The combination of high-density fracturing technology and the suite of intervention tools for extended-reach wells will allow Trican to provide a full package of products and services and enhance its current offering of coiled tubing intervention tools as well as coiled tubing drilling services.

CARBON-TO-CASH CONTEST

A new contest is encouraging innovators to discover new uses for carbon, with a $10-million grand prize going to the best idea. The Climate Change and Emissions Management Corporation (CCEMC) announced its $35-million "Grand Challenge: Innovative Carbon Uses" in Edmonton in February.

The contest is looking for ideas at all stages of research and development that are rooted in solid science and will help reduce emissions while finding useful applications for carbon.

"We are seeking bright, credible ideas from around the world that will repurpose carbon and use it as a starting material, helping Alberta to create a market for carbon use," said CCEMC chair Eric Newell.

Submissions for the first round of the Grand Challenge will be accepted until July 15, with results announced in March 2014. Up to 20 winners will be chosen to each receive $500,000. Subsequent rounds will hand out $3 million each to five projects and a grand prize of $10 million to a single project.

The competition will accept submissions from around the globe, with the caveat that all technologies must be applicable to Alberta. Applications for the competition are currently being accepted at http://www.ccemcgrandchallenge.com.

ARTIFICAL LIFT TECHNOLOGY DEAL REACHED

Zedi Inc. says that it has completed a purchase agreement with Crescent Point Energy Corp. to equip the producer's new drill program near Viking, Alta., with the Zedi SilverJack artificial lift system.

"Crescent Point is always eager to find innovative methods to improve production and deploy field technology," Neil Smith, vice-president of engineering and business development with Crescent Point, said. "We've adopted Zedi SilverJack because our installation time is now hours instead of days, and our operations team finds the control panel easy to use both at the well and remotely. This flexibility improves our overall performance and saves costs."

Crescent Point also agreed to purchase Zedi Oil Well Test for nearly 250 active wellsites, which represents a significant investment in Zedi's oil offerings, said the company.

The producer will begin testing its wells using Zedi's Oil Well Test in the first quarter of 2013. The technology is expected to allow for the completion of more tests with less effort, which is expected to reduce the frequency of orifice plate changes and eliminate data errors that happen if an operator is not able to be on site at a specific time, said Zedi. ■

LABOUR UPDATE

LABOUR MARKET INFORMATION

Alberta's seasonally adjusted unemployment rate was 4.5 per cent in February 2013, unchanged from January and down 0.4 percentage points from the same month last year. This rate was second lowest in Canada, behind Saskatchewan's 3.8 per cent. The national rate was seven per cent, unchanged from the previous month.

The unemployment rate was unchanged because the labour force increased by 5,700 people and employment increased by 4,200 from January to February 2013.

Full-time employment increased by 11,700 and part-time employment decreased by 7,500 in February compared to January. Between February 2012 and February 2013, employment in Alberta increased by 52,900. This employment increase accounted for 15.7 per cent of Canada's employment growth over the same period.

WORKING IN ALBERTA ONLINE JOB EXPO

Imagine reaching a national and international audience with ease, for a fraction of the cost of a traditional job fair, without ever leaving your desk. The Working in Alberta Online Job Expo offers employers the chance to fill job vacancies in the oil and gas and construction fields in a timely and cost-efficient way.

Click here for more information and how to participate.

NEW EMPLOYER WEBSITE SECTION

The Alberta government's new and improved employer's web section is now available at www.albertacanada.com/employers.

The new employer web section will provide Alberta employers with a single point of access for information related to planning, recruiting and retaining international and domestic workers.

HIRING AND RETAINING FOREIGN WORKERS WEBINARS

Want to retain your employees working as skilled temporary foreign workers? Attend a 30-minute webinar that explains one of the quickest permanent immigration options available—the Alberta Immigrant Nominee Program.

Click here to register for a free webinar or watch a recorded webinar and learn about labour market opinions, work permits, trades certification and review the federal and provincial immigration programs available.

WHERE TO RECRUIT IN THE UNITED STATES

A newly released recruitment fact sheet tool allows employers to find information about identifying the top locations for recruiting high demand occupations in the oil and gas, construction and engineering occupations. The tool also provides information is also available about what to consider when recruiting internationally.

Click here to access the tool.

CONTACT US

If you have questions, concerns or require more information, contact us at EAE.findlabour@gov.ab.ca. ■

Working in Alberta
ONLINE JOB EXPO

Need to reach national and international job seekers?

Alberta Government

Working in Alberta Online Job Expo, May 14 - 15

- Post job openings and collect resumes
- Live chat with job seekers from your interactive booth
- Reach job seekers in Alberta, Canada, U.S., U.K. and Ireland
- All for a fraction of the cost of a traditional job fair

Learn more at www.AlbertaCanada.com/jobexpo2013

Oil and gas statistics

DRILLING RIG COUNT BY PROVINCE/TERRITORY

Western Canada Mar. 5, 2013

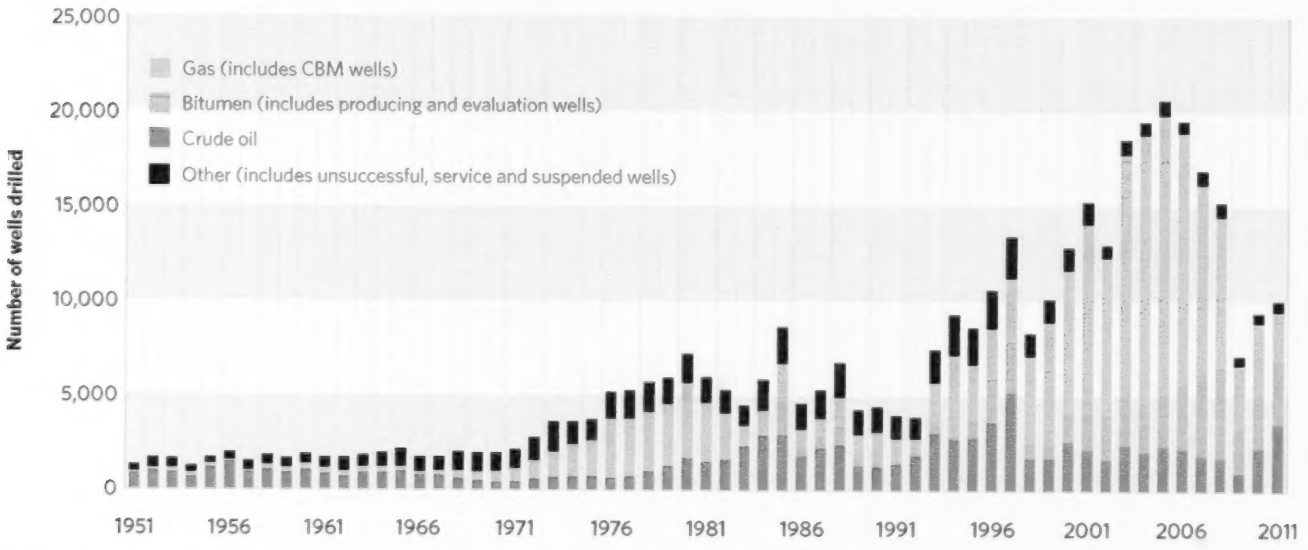
	ACTIVE	DOWN	TOTAL	ACTIVE
Western Canada				(Per cent of total)
Alberta	415	177	**592**	70%
British Columbia	53	7	**60**	88%
Manitoba	18	6	**24**	75%
Saskatchewan	92	32	**124**	74%
WC Total	**578**	**222**	**800**	**72%**
Yukon	1	0	**1**	100%

OIL & GAS WELL COMPLETIONS BY PROVINCE/TERRITORY

Western Canada February 2013

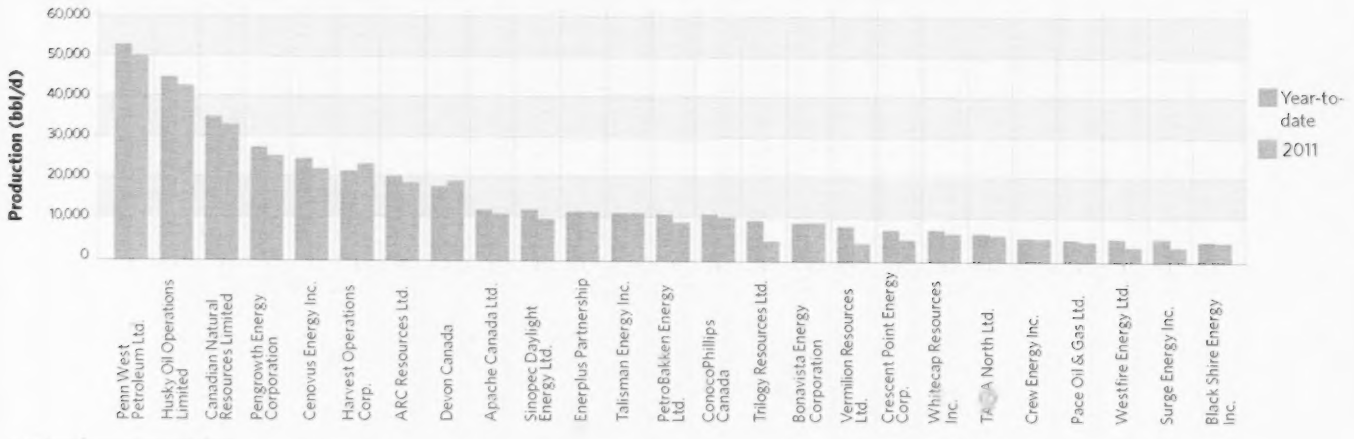
	OIL WELLS		GAS WELLS	
Western Canada	**February 2012**	**February 2013**	**February 2012**	**February 2013**
Alberta	481	449	176	124
British Columbia	2	3	61	37
Manitoba	56	90	0	0
Saskatchewan	296	358	6	0
Total	**835**	**900**	**243**	**161**

DRILLING ACTIVITY IN ALBERTA, 1951-2011



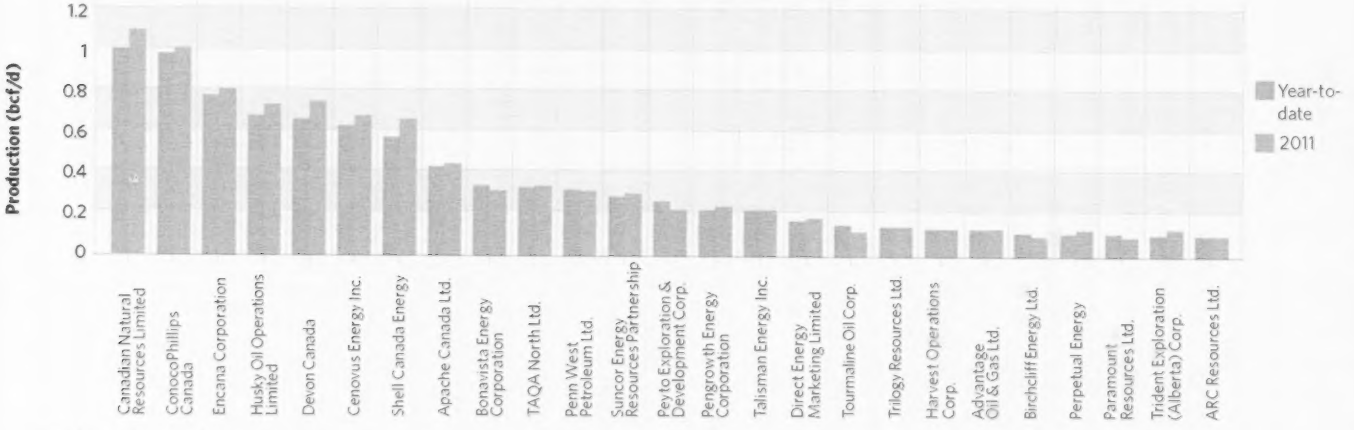
For a glossary of oil and gas terms and other industry information, go to the *Daily Oil Bulletin* toolkit:
http://www.dailyoilbulletin.com/common/toolkit.asp

TOP 25 OIL PRODUCERS IN ALBERTA (AS OF OCT. 23, 2012)

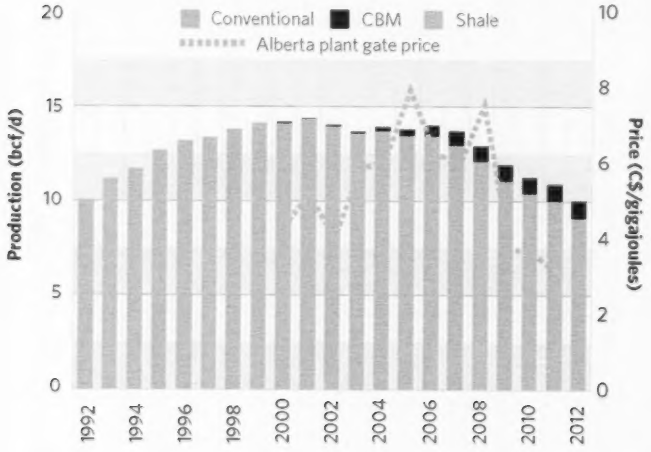


TOP 25 GAS PRODUCERS IN ALBERTA (AS OF OCT. 23, 2012)

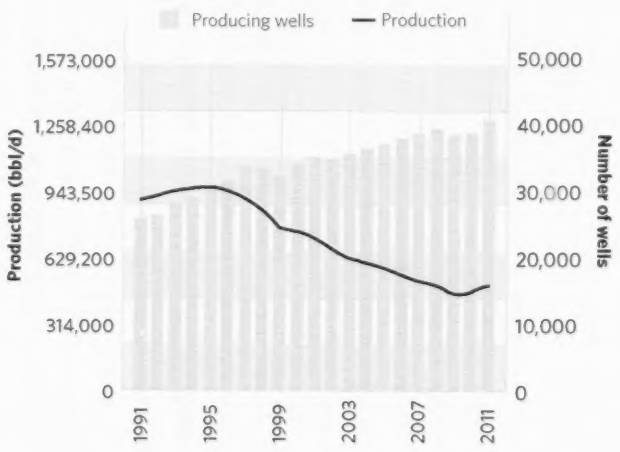
Only gas production reported from oil and gas batteries, gas gathering systems and gas plants is considered. Bitumen facilities, straddle plants and fractionation plants are excluded, as is gas from commercial gas storage schemes.



ALBERTA MARKETABLE GAS PRODUCTION

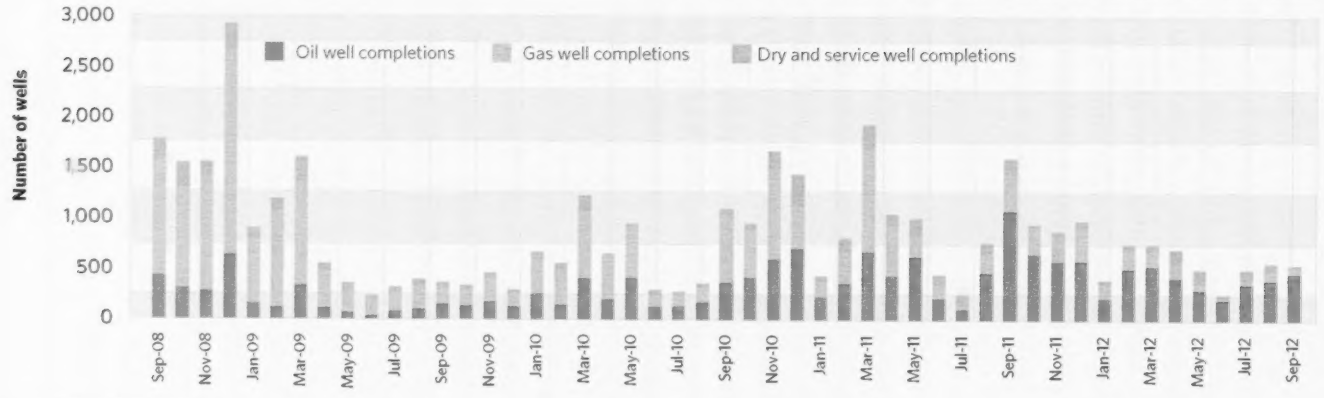


ALBERTA CRUDE OIL PRODUCTION AND PRODUCING WELLS



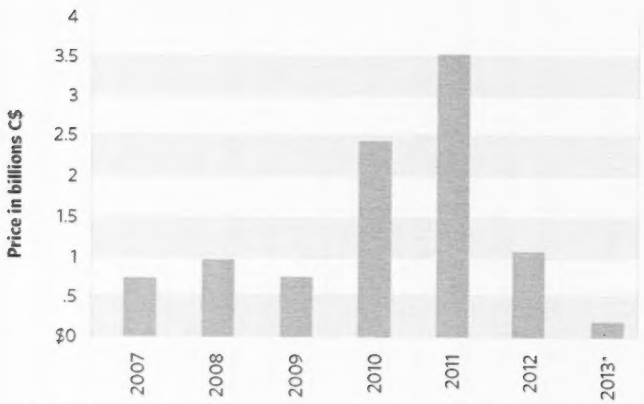
ALBERTA WELL COMPLETIONS

There were 524 well completions in September 2012, down 66 per cent from the 1,531 completions reported in September 2011. To date, there have been 3,301 oil completions, down 18 per cent from the 4,045 oil completions a year ago, and 882 gas completions, down 68 per cent from the 2,787 completions a year ago.



ALBERTA CROWN LAND SALES

P&NG rights, excluding oil sands

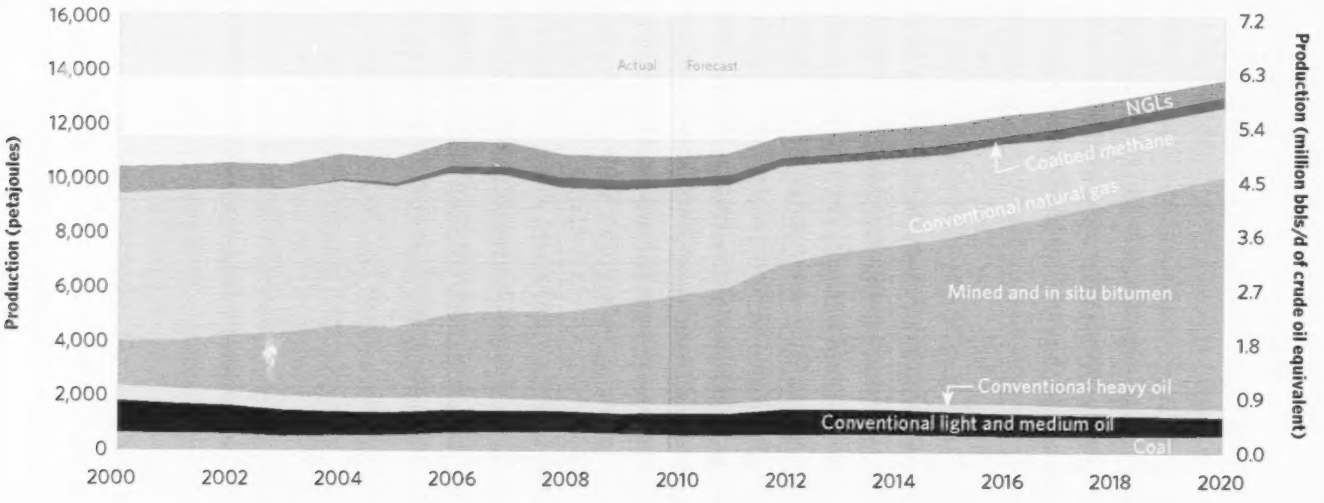


*1044 leases as of March 6, 2013

WELL DEPTHS

	GAS			OIL		
	Total metres	Wells drilled	Av. well depths (m)	Total metres	Wells drilled	Av. well depths (m)
2007	10,756,598	9,628	1,117	4,080,460	3,059	1,334
2008	9,517,507	7,886	1,207	3,931,655	2,890	1,360
2009	4,764,321	3,400	1,401	2,501,875	1,848	1,354
2010	6,037,031	3,801	1,588	5,803,292	3,681	1,577
2011	5,005,591	2,185	2,291	8,941,754	5,008	1,785

TOTAL PRIMARY ENERGY PRODUCTION IN ALBERTA



Promising tight oil plays

Alberta's crude oil potential was once thought to be declining—but not anymore. With technological advancements, both conventional fields and new oil-laden fields that were thought to be uncommercial with pre-existing vertical drilling technology are now the hot crude plays in the province. Here's a look at some of the more promising tight oil plays that have been unlocked via horizontal drilling and multistage fracturing technology.

DRAINING THE CARDIUM

Coaxing crude oil out of the ground from the Cardium formation underlying the Pembina oilfield has always been a matter of brute force.

The Pembina #1 discovery well, drilled by Socony-Mobil in the winter of 1953, required a fracture treatment consisting of diesel fuel and 3,000 pounds of sand pumped at 1,800 pounds per square inch of pressure to get oil flowing to the wellbore in commercial quantities.

Almost 60 years later, oil explorers are still at it, cracking sandstone as deep as 9,400 feet beneath the surface in the hopes of striking pay. Only now the wells drilled are horizontal and stretch as far as a mile through the reservoir. Massive fracture treatments consist of 20 tons of sand—more than 12 times as much as was pumped downhole in the Pembina #1—mixed with specialized fluids. And as many as 20 stages are fracture stimulated one after another along the horizontal leg using on average 10,000 horsepower of pumping might.

The size of the prize is huge. The Alberta Energy Resources Conservation Board says the Cardium had 10 billion barrels of original oil in place with around 1.7 billion barrels produced. However, those numbers were derived from

MOST ACTIVE COMPANIES

BEAVERHILL LAKE/ SLAVE POINT CARBONATE

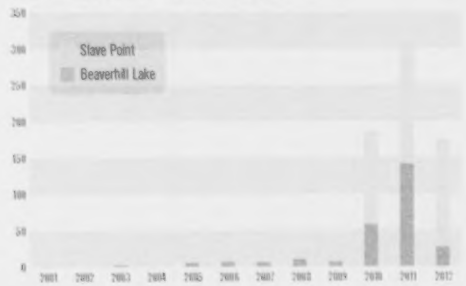
1. Pinecrest Energy Inc.
2. Penn West Petroleum Ltd.
3. Lone Pine Resources Canada Ltd.
4. Second Wave Petroleum Inc.
5. Shell Canada Limited
6. Surge Energy Inc.
7. Dolomite Energy Inc.
8. Border Petroleum Corp.
9. Encana Corporation
10. Mancal Energy Inc.

CARDIUM

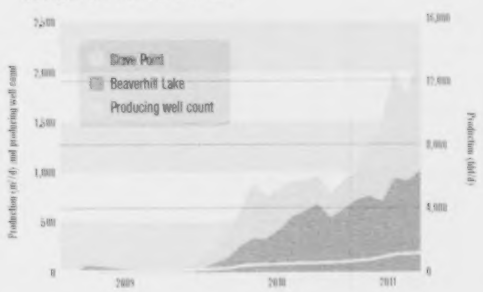
1. PetroBakken Energy Ltd.
2. Vermilion Energy Inc.
3. Sinopec Daylight Energy Ltd.
4. Whitecap Resources Inc.
5. Spartan Oil Corp.
6. Bellatrix Exploration Ltd.
7. Penn West Petroleum Ltd.
8. ARC Resources Ltd.
9. Pengrowth Energy Corporation
10. Angle Energy Inc.

BEAVERHILL LAKE/SLAVE POINT CARBONATE

HORIZONTAL WELL LICENCES

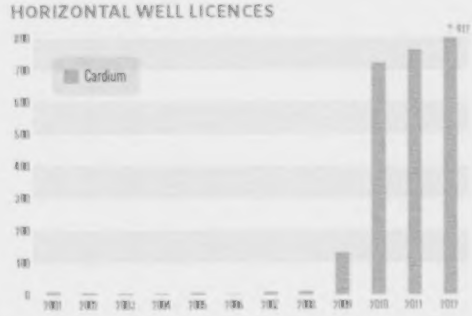


TIGHT OIL PRODUCTION

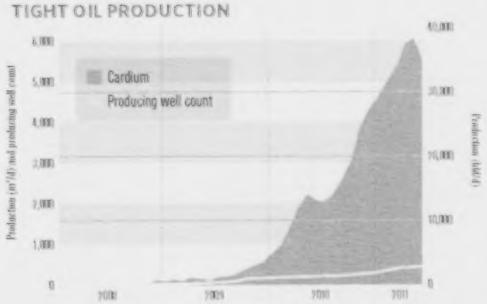


CARDIUM

HORIZONTAL WELL LICENCES



TIGHT OIL PRODUCTION



All data as of November 2011

historical records from vertical drilling in the play. Estimates now suggest the Cardium could contain as much as 15 billion barrels of oil, and expect 20-30 per cent of that oil could ultimately be recovered.

RETURN TO SWAN HILLS

The Beaverhill Lake carbonate play in the Swan Hills north of Edmonton is another hot tight oil play in central Alberta. Home Oil Company originally discovered the North Swan Hills field in 1956. Amoco Corporation and Gulf Oil Corporation discovered the South Swan Hills unit in 1959. Combined, the two fields had around four billion barrels of oil in place.

Producers are using a 14-stage fracture stimulation program with a retrievable multi-fracturing tool that allows full wellbore access later if needed. More and more acid is being pumped in each fracture stage to open up more reservoir. Operators are now injecting as much as 1,200 cubic metres of acid per stage. The acid treatment is custom designed for the formation rock. Jet pumps are being used to enhance cleanup after the fracture stimulation to mitigate any formation damage, and multi-well pads are being used to cut costs and environmental footprints.

PIERCING THE VIKING

Another major play taking shape in central Alberta is in the Colorado Group, in the eastern reaches of the province.

The Viking oil play at Halkirk and Redwater has mainly entered development mode while in other areas it remains in exploration mode. Given the strength of oil prices in this market, the Viking will be targeted by more and more operators providing new well data and evolving the play in the province.

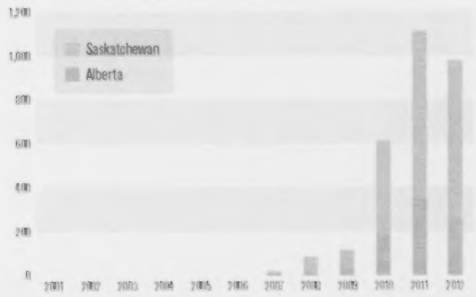
In 2012, WestFire Energy Ltd., which in October 2012 amalgamated with Guide Exploration Ltd. to become Long Run Exploration Ltd., has been the premier Viking player in Alberta. At Redwater, WestFire holds 62 net sections of land. In 2012, the company's Viking wells achieved marked improvement in initial production rates, thanks to its modified completion methods.

Penn West Petroleum also has a significant position in the Viking oil play. On the Alberta side, production results from the gassy-oil wells drilled in 2012 continue to be encouraging, reports the company. During the year, the company expanded its gas-handling infrastructure to support its active 2013 drilling programs.

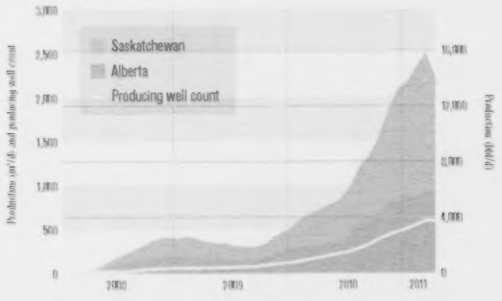
Novus Energy Inc. recognizes the vast potential of the Viking, and the company recently amassed 46 net sections of Crown lands prospective for Viking oil in the Provost area of Alberta. Novus believes the assembled acreage meaningfully increases the company's future drilling and development inventory. Drilling on these lands is planned for early 2013. ■

VIKING

HORIZONTAL WELL LICENCES

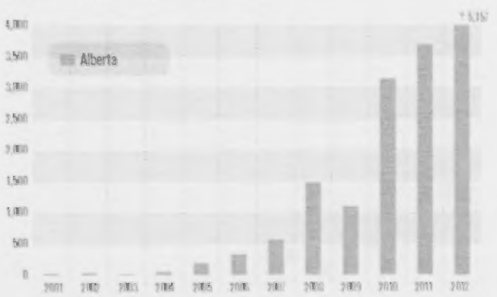


TIGHT OIL PRODUCTION



ALBERTA OVERVIEW

HORIZONTAL WELL LICENCES



TIGHT OIL PRODUCTION

MOST ACTIVE COMPANIES

VIKING

1. Teine Energy Ltd.
2. Penn West Petroleum Ltd.
3. Polar Star Canadian Oil and Gas Inc.
4. Novus Energy Inc.
5. Raging River Exploration Inc.
6. Whitecap Resources Inc.
7. Pengrowth Energy Corporation
8. Crescent Point Energy Corp.
9. Renegade Petroleum Ltd.
10. Cutpick Energy Inc.

CONTACTS

Industry Associations

• Alberta Land Surveyor's Association	www.alsa.ab.ca
• Canadian Association of Geophysical Contractors	www.cagc.ca
• Canadian Association of Oilwell Drilling Contractors	www.caodc.ca
• Canadian Association of Petroleum Producers	www.capp.ca
• Canadian Energy Pipeline Association	www.cepa.com
• Canadian Gas Association	www.cga.ca
• Canadian Natural Gas	www.canadiannaturalgas.ca
• Canadian Natural Gas Vehicle Alliance	www.cngva.org
• Canadian Society of Exploration Geophysicists	www.cseg.ca
• Canadian Society of Petroleum Engineers	www.speca.ca
• Canadian Society for Unconventional Resources	www.csur.com
• Gas Processing Association Canada	www.gpacanada.com
• Petroleum Services Association of Canada	www.psac.ca
• Petroleum Technology Alliance Canada	www.ptac.org
• Explorers and Producers Association of Canada	www.explorersandproducers.ca

Alberta Government

• Alberta Energy	www.energy.gov.ab.ca
• Alberta Environment and Sustainable Resource Development	www.srd.alberta.ca
• Alberta Enterprise & Advanced Education	www.eae.alberta.ca
• Energy Resources Conservation Board	www.ercb.ca
• Alberta Innovates	www.albertainnovates.ca
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